GLOSSARY

Colloids. Microscopic suspended particles which do not settle in a standing liquid and can only be removed by coagulation or biological action.
Demineralization. The process of removing dissolved minerals from water by ion exchange, reverse osmosis, electrodialysis, distillation or other processes.
Denitrification. The biological process which converts nitrates in the wastes to molecular nitrogen.
Desalinization. The process of removing dissolved salts from water.
Detention (Retention). The dwell or residence of wastewater, usually expressed in hours, in a treatment unit.
Disinfection. The process of killing the major portion of microorganisms in a waste stream with the probability that all pathogenic organisms are killed. This is not necessarily true for viruses.
Dissolved Oxygen. Elemental oxygen dissolved or molecularly dispersed in wastewater. Does not include any oxygen present in the combined form even though a compound may be an oxidizing agent. Expressed in mg/L.
Dissolved Solids. The solids remaining in a waste after filtering by specific test procedures. Expressed in mg/L.
Dragout. The liquid which is removed from a process step such as plating by the film retained on the work or part passing through the process.
Effluent. Wastewater leaving a particular system, treatment process or treatment plant.
Environmental Impact. The effects of a proposed facility or action on the environment, including changes to the air, streams, wildlife habitat, aesthetics, recreation and other similar factors.
Equalization. The holding or storing of wastes having differing qualities and rates of discharge for finite periods to facilitate blending and achievement of relatively uniform characteristics.
Explosive. A material which by the influence of thermal or mechanical shock decomposes rapidly with the evolution of much heat and gas. In the military context, it is the material used to propel a projectile or to produce fragmentation of the projectile at its terminal point. Such explosives are classified into two divisions, termed high and low explosives in accordance. with behavior or use. Detonating or high explosives include primary explosives such as detonators (lead azide, mercury fulminate, etc.) and secondary explosives such as RDX and TNT. Low explosives exert a powerful push with a low burning rate and are used primarily as propellants and are often referred to by that name. Propellants include materials such as nitrocellulose, nitroglycerine and nitroguanidine.
Filtration. A unit operation in which solid or colloidal material is separated from a liquid by movement through a granular or porous sheet type material such as cloth or paper.
Fixed Solids. The non-volatile component of the total solids, either suspended or dissolved, consisting or inorganic materials. The ash residue remaining after igniting dried residue from the total solids test at 550°C. Expressed in mg/L.
Floe. Gelatinous mass formed in liquids by the addition of coagulant, by microbiological processes or by particle agglomeration.
Flocculation. The process of floe formation normally achieved by direct or induced slow mixing.
Flume. An open, inclined channel or conduit for conveying water.
Fume Scrubber. Equipment used to remove objectionable fumes from a gas or air stream. Normally achieved by contact of the gas stream with a counter-current liquid stream in “which objectionable constituents are collected.
Grease. A group of substances including fats, waxes, free fatty acids, calcium and magnesium soaps, mineral oils and certain other non-fatty materials. The grease analysis will measure both free and emulsified oils and greases. Generally expressed in mg/L.
Grit. Heavy suspended mineral matter such as sand, gravel and cinders which is present in wastewater.
Hardness. A characteristics of water imparted principally by the presence of calcium and magnesium compounds. Hardness is undesirable from the standpoint that it reacts with soap resulting in increased consumption. Also it is the prime cause of boiler scale and can adversely affect some industrial processes. Normally expressed in mg/L as $CaCO_3$.
Heavy Metals. Metals that can be precipitated by hydrogen sulfide in an acid solution, for example lead, silver, mercury, copper, chromium, zinc and nickel.

Infiltration. The quantity of groundwater which enters a sewer pipe through faulty joints, porous walls or breaks.
Inflow. Includes storm flows and non-contaminated flows such as cooling water which are diverted to a separate sanitary sewer. Can cause sewer overflows and overloading of treatment facilities.
Ion Exchange. The reciprocal transfer of ions between a solid and a solution surrounding the solid.
Ionization. The process by which, at the molecular level, atoms or groups of atoms acquire a charge by the loss or gain of one or more electrons.
Land Application (Land Spreading or Land Treatment). Disposal of wastewater by discharge to the land (such as irrigation) or disposal of waste sludge by spreading on the land.
Life Cycle Costs. All cost applicable to a facility over the period of its useful life. Such costs include fixed charges such as depreciation, interest, taxes, and insurance as well as operating expenses, labor, maintenance and supplies.
Vitrification (Nitrogen Conversion). The conversion of nitrogenous matter into nitrates.
Nitrogen, Ammonia (NH_3-N). A measure of the amount of nitrogen which is in the form of ammonia. Expressed in mg/L as N.
Nitrogen, Kjeldahl (Total Kjeldahl Nitrogen or TKN). A measure of nitrogen combined in organic and ammonia forms. Expressed in mg/L as N.
Nitrogen, Nitrate ($N0_3$-N). A measure of the amount of nitrogen which is in the form of nitrate. Expressed in mg/L as N.
Nitrogen Removal. Unit operations and unit processes required to remove different forms of nitrogen from a water. This may be accomplished partially in a biological process used in secondary treatment; however, normally it entails subsequent aerobic and anaerobic processes, ammonia stripping, chlorination or other similar steps.
Package Plant. A treatment plant, pumping station or major functional part thereof which has been pre-assembled prior to delivery for installation.
pH. A measure of the intensity of acid or alkaline condition of the solution. The logarithm of the reciprocal of the hydrogen ion concentration. In an aqueous solution, neutral pH is 7.0, alkaline pH greater than 7.0, and acid pH less than 7.0. pH differs from alkalinity and acidity which measure the capacity of a solution to provide hydrogen or hydroxylions.
Phosphatizing. Application of a phosphate-bearing coating to a metal part as a corrosion inhibitor and/or as a base for other coatings.
Phosphorus Removal. The process of removing phosphorus from the wastewater by precipitation, adsorption or biological means.
Physical-Chemical Treatment (PCT). A combination of unit operations arranged to achieve treatment equivalent to conventional secondary biological treatment. Basically suspended solids are removed by addition or a coagulant and coagulant aid followed with a clarification step achieved by settling. The effluent may be filtered to ensure essentially complete suspended solids removal. Dissolved organic pollutants are removed in a subsequent activated carbon unit.
Pickling. The treatment of a metallic material or part with acid to remove surface oxide.
Pond. An engineered impoundment containing raw or partially treated wastewater in which aerobic and/or anaerobic stabilization occurs. Sometimes referred to as a lagoon.
Preliminary Treatment. Treatment operations such as screening, grit removal, comminution and equalization which preceded primary treatment.
Pretreatment. Those treatment operations used at a point source or upstream from the wastewater collection system. This is particularly applicable to industrial process wastewaters to eliminate constituents such as grease or toxic materials which may adversely affect the collection system or subsequent treatment processes.
Primary Treatment. Removal of waste constituents (suspended solids and BOD associated with the settleable solids removed) by settling, usually without addition of coagulant or coagulant aids.
Propellants. See explosives.
Raw Waste. Waste entering a treatment facility.
Reverse Osmosis. A process whereby water is forced to pass through semi-permeable membranes under high pressures. Water passing through the membrane is relatively free of dissolved solids; solids are retained in concentrated form on the feed side of the membrane and are wasted.
Secondary Treatment. A stage of treatment to perform additional waste constituent removal beyond that provided by primary treatment. The most common form of secondary treatment is a biological process

such as an activated sludge or trickling filter followed by a secondary settling tank. Equivalent secondary treatment performance can usually be attained by physical-chemical processes.

Sedimentation. Clarification (settling).

Sewers. Lateral Sewer-One that discharges into a branch or main sewer and receives wastewater from individual sources.

Branch Sewer-One that serves a small area and receives wastewater directly from sources or from lateral sewers.

Main or Trunk Sewer-One that receives wastewater from many tributary branch sewers and serves a large area.

Interceptor Sewer-One that receives wastewater from trunk sewers and branch sewers and conducts it to the point of treatment or discharge.

Sludge. A concentrate in the form of a semiliquid mass resulting from settling of suspended solids in the treatment of sewage and industrial wastes.

Sludge Conditioning. Treatment of liquid sludge, usually by heat treatment or addition of chemicals, before dewatering to facilitate water removal and enhance drainability.

Sludge Dewatering. The process of removing a part of the water from the sludge to convert to a semisolid form. Methods used include draining, pressing, vaccum filtration, pressure filtration, centrifugation and others.

Sludge Incineration. The burning of dewatered sludge under sufficiently high temperature to oxidize all organic components. The resulting residue is a sterile ash.

Sludge Stabilization. Any treatment including such operations as anaerobic or aerobic digestion which converts sludge to a form which can be disposed of without a detrimental effect on the environment.

Sludge Thickening. Settling, air flotation, centrifugation or similar operations to decrease the water content of the sludge yet maintain it in a fluid form.

Suspended Solids. Solids retained by filtering a sample of a water or wastewater stream. Retained material is dried at 103°C prior to weighing. Expressed in mg/L.

Total Solids. This dissolved and suspended solids content of a water or wastewater stream. Determined by evaporating liquid and drying to a residue at 103°C prior to weighing. Expressed in mg/L.

Toxic Material. Any material which inhibits normal biological processes in animals, treatment processes, or the environment. Normally these are materials which cause such inhibition at low concentration levels.

Turbidity. A measure of fine suspended material (usually colloidal) in a liquid. Usually expressed in standard Jackson turbidity units. In most cases, suspended material consists of fine clay or silt particles, dispersed organics and microorganisms.

Volatile Solids. Solids, dissolved or suspended, which are primarily organic and exert the significant portion of the BOD during stabilization. Expressed in mg/L.

Wastewater Inventory. A detailed listing of all wastewater sources including data on flow, temperature, BOD, suspended solids and other parameters necessary to define quality.

Weir. A control device placed in a channel or tank which facilitates measurement or control of the water flow.